

**ABSTRACT**

There are provided a pair of serially-connected magneto-resistive elements (1a, 1b), one of which serves as a sensing portion (6) made to face a magnetic detecting medium (S), and the other as a temperature-compensating portion (7); a magnet (5) that gives magnetic biases having different types of magnetism to the magneto-resistive elements (1a, 1b); and a detection circuit (8) that applies DC voltage to between ends of the serially-connected magneto-resistive elements (1a, 1b) and detects a potential change of the common connection point of the magneto-resistive elements (1a, 1b).